

CLAIMS

1. A method for transplanting lymphohematopoietic cells into a mammal, which comprises the step of injecting cells into a bone marrow cavity, 5 and wherein the cells have an exogenous gene encoding a receptor that induces cell proliferation in response to ligand binding.
2. The method of claim 1, which lacks the step of marrow conditioning before injection of the cells.
- 10 3. The method of claim 1, wherein the exogenous gene has been introduced into the cell using a viral vector.
4. The method of claim 1, wherein the receptor is a chimeric protein having (a) an extracellular domain of a receptor that dimerizes the chimeric protein in response to ligand binding, and (b) a growth signal generator that induces cell proliferation in response to the dimerization.
- 20 5. The method of claim 1, wherein the receptor has a cytoplasmic domain of a hematopoietic cytokine receptor.
6. The method of claim 1, wherein the receptor has a cytoplasmic domain of a thrombopoietin (TPO) receptor or a granulocyte 25 colony-stimulating factor (G-CSF) receptor.
7. The method of claim 1, wherein the receptor has an extracellular domain of an erythropoietin (EPO) receptor.
- 30 8. The method of claim 1, wherein the cell is a pluripotent stem cell.
9. The method of claim 1, wherein the mammal is a primate.
10. The method of claim 1, wherein the method comprises the step of 35 administering a ligand of the receptor into the mammal.

11. The method of claim 1, wherein the cell comprises a vector having a therapeutic gene.
12. A bone marrow transplant comprising (a) lymphohematopoietic cells having an exogenous gene encoding a receptor that induces cell proliferation in response to ligand binding, and (b) a pharmaceutically acceptable carrier.
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13. A kit for transplanting lymphohematopoietic cells into a mammal, which comprises (a) a vector encoding a receptor that induces cell proliferation in response to ligand binding, and (b) a recording medium describing the use of the vector and lymphohematopoietic cells introduced with the vector for injection into the bone marrow cavity.
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14. A gene encoding a fusion protein comprising (a) a ligand-binding domain of erythropoietin (EPO) receptor, and (b) a growth signal generator that imparts proliferation activity to a cell upon the binding of a ligand.
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15. The gene of claim 14, wherein the growth signal generator is a cytoplasmic domain derived from the granulocyte colony-stimulating factor (G-CSF) receptor or thrombopoietin (TPO) receptor.
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